

IN THE CLAIMS:

Cancel Claims 1-22 without prejudice and substitute therefor the following Claims

23- 39:

1-22. (Cancelled)

23. (new) A method for adiabatic deformation of a material body (1), comprising the steps of

conveying a stamping member (2) towards the material body (1) such that the stamping member (2) impacts (F) the material body (1) with such velocity to generate adiabatic coalescence causing permanent deformation of the material body (1) and generating a rebound motion of the stamping member (2), and

counteracting (3) the rebound motion of the stamping member (2) and generating at least one additional impact of the stamping member (2) against the material body (1), within a period during which kinetic energy of a reciprocating wave in the material body (1), generated in connection with the rebound motion of the stamping member (2), generates additional deformation in the material body (1) by gradual activation of sliding planes or mutual displacement of powder grains in the material body (1).

24. (new) The method of claim 23, comprising the step of

counteracting (3) the rebound motion by causing a force (F1) to act upon the stamping member (2) in a direction towards the material body (1).

25.(new) The method of claim 24, comprising the step of

causing the stamping member (2) to impact the material body (1) in the direction towards the material body (1) such that the force (F1) acting upon the stamping member (2) comprises, at least in part, gravity acting upon the stamping member (2).

26. (new) The method of claim 23, comprising the step of applying (3) a force (F1) to the stamping member (2) in the direction towards the material body (1) to counteract the rebound motion of the stamping member (2).

27. (new) The method of claim 23, comprising the step of generating a series of impacts of the stamping member (2) against the material body (1) within said period.

28. (new) The method of claim 27, comprising the step of counteracting a corresponding series of rebounds of the stamping member (2).

29. (new) The method of claim 27, comprising the step of decreasing impulse with which the stamping member (2) impacts the material body (1) with each succeeding impact in said series.

30. (new) The method of claim 27, comprising the step of after completing the series of impacts, applying at least one additional series of impacts to the material body (1).

31. (new) The method of claim 23, comprising the step of causing the stamping member (2) to accelerate towards the material body (1) under influence of gravity.

32. (new) The method of claim 23, wherein the period is approximately 1 ms.

33.(new) The method of claim 30, wherein the series of impacts is completed after reciprocating waves generated in the material body (1) at a moment the stamping member (2) bounces back from the material body (1), have subsided.

34. (new) The method of claim 23, wherein the material body (1) is a solid body comprising metal material, and the kinetic energy of the reciprocating wave generates gradual activation of sliding planes in the material body (1).

35. (new) The method of claim 23, wherein the material body (1) a powder provided in a mold, and the kinetic energy of the reciprocating wave generates gradual mutual displacement of powder grains in the material body (1).

36. (new) A device for deformation of a material body (1), comprising  
means for receiving the material body (1) to be deformed,

a stamping member (2) structured and arranged to impact the material body (1) with velocity such that adiabatic coalescence causing permanent deformation of the material body is produced in the material body (1) while a rebound motion of the stamping member (2) is generated, and

means (3) structured and arranging for generating a force (F1) upon the stamping member (2) in a direction of the material body (1) and counteracting the rebound of the stamping member (2) and generating at least one additional impact of the stamping member (2) against the material body (1) within a period during which kinetic energy of a reciprocating wave in the material body (1), generated in connection with the rebound motion of the stamping member (2), generates additional deformation in the material body

(1) by gradual activation of sliding planes or a mutual displacement of powder grains in the material body (1).

37. (new) The device of claim 37 wherein said means (3) is an hydraulic cylinder.

38. (new) The device of claim 37, wherein said stamping member (2) and means (3) are structured and arranged with respect to one another such that succeeding impacts upon the material body (1) during a series of rebounds of the stamping member (2) gradually decrease.

39. (new) The device of claim 36, wherein the period is approximately 1 ms.